area at any time, consistent with the statutory and regulatory requirements that are imposed on the respective operations. It is the licensee's obligation to maintain the various operations in compliance with the requirements.

226. We conclude that this flexible approach to licensing and regulatory status achieves efficiencies in the application and administrative process, as well as in the licensee's performances. We have allowed certain mobile services in Part 24 and Part 90 to be authorized in a single license on both a common carrier and private carrier basis in order to provide services in both categories of service.[353] Alternatively, the applicant may wish to limit its operations to common carrier or non-common services, in which case it would apply only for authorization on a common carrier or a non-common carrier basis, and the license would be issued for the status specified.

227. We discuss below the specific procedures and rules we adopt to implement the flexible framework for the licensing and operations of LMDS.

6. Application and Operating Rules and Procedures for LMDS

a. Background; Decision

228. We proposed to implement service rules for LMDS in Part 21 of the Commission's Rules that contained the rules for fixed microwave services. On February 29, 1996, we adopted a new Part 101 that consolidates all of the common carrier microwave services, except MDS, from Part 21 together with the private microwave services in former Part 94 under one set of streamlined rules for all fixed microwave services.[354] MDS remains regulated under Part 21, which has been amended in a separate proceeding.[355]

229. We will include the service rules for LMDS in Part 101. As proposed in the *First NPRM,* we adopt a new Subpart L to be added for LMDS that will include the procedures specific to its licensing and operations, as discussed below.[356] We will otherwise modify the general provisions of Part 101 where necessary to include LMDS. The revised rules are in Appendix A of this Order. In Subpart A of Part 101, we adopt the definitions of LMDS proposed in the *Third NPRM.* In Subparts C and D, we modify the technical standards and operations discussed elsewhere in this Order. As for the application and

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[353] *CMRS Second Report and Order*, 9 FCC Rcd at 1459 (paras. 115, 119); 47 CFR § 20.9(b).

[354] *Part 101 Report and Order*, 11 FCC Rcd at 13451.

[355] *MDS and ITFS Competitive Bidding Report and Order,* 10 FCC Rcd 9589.

[356] *First NPRM*, 8 FCC Rcd at 568, Appendix B.

licensing rules in Subpart B and the operating rules in Subpart E, we modify them to reflect the procedures we adopt in Subpart L to implement the broad service definition and flexible regulatory classifications for LMDS carriers.

230. The licensing and operating rules and procedures for LMDS are discussed below, based on the rules proposed in the *First NPRM* and the changes we adopt above in response to the comments for a flexible service definition and simplified status election procedures. To the extent any of the comments addressed the proposed rules, the remarks were included in the comment summaries we provided above in the background of our previous discussion. The proposed rules in the *First NPRM* were drafted for inclusion in Part 21 and relied on many of the general rules, as well as the MDS-specific rules, for processing applications and changing status. However, when we consolidated all of the Part 21 microwave services except MDS into new Part 101 and adopted the Part 21 rules for the removed services, we modified the rules for Part 101 to limit their provisions to common carriers. This effectively eliminated their applicability to the non-common carrier LMDS services, as originally proposed. Many of the amendments we adopt below in Part 101 are to reinstate the original scope of the rule from Part 21 insofar as it was proposed for LMDS.

b. Application Forms

231. In the *First NPRM,* we proposed a lengthy rule with numerous provisions for the content and form of applications for new LMDS systems and for the modification of existing licenses.[357] It provided for the number of pages, the contents of the certifications and other required information, and several exhibits. The exhibits included a service proposal indicating how the applicant determined the needs of the public and intended to provide service, a statement of public interest, and a system design. The rule also proposed that an applicant submit FCC Form 494, the application form used in Part 21.

232. Many changes have occurred since the *First NPRM*, as reflected in this Order, to invalidate the proposed rule. As discussed in Section II.D., *infra*, we adopt competitive bidding rules and procedures to select from among competing applications if two or more entities file mutually exclusive initial applications. Consequently, all applicants for initial LMDS authorization now are required, first, to submit a short-form application (FCC Form 175) as described under the rules governing competitive bidding procedures in Subpart Q of Part 1 of our rules.[358] An applicant subsequently files a long-form application that is specific to the service only if it is the winning bidder after an auction is held or, in cases of no mutual

[357] *Id.* at 564 (paras. 42-44), 569, Appendix B, Proposed Rule § 21.1004.

[358] 47 CFR §§ 1.2101-1.2111.

exclusivity, it is the sole applicant. Here, we are discussing the long-form application to be used in LMDS.

233. When we consolidated our fixed microwave service rules into new Part 101 in the *Part 101 Report and Order,* we adopted in new Section 101.15 the application forms from Part 21 and proposed for LMDS.[359] However, we determined to replace application Form 494 with a unified application form for all the services consolidated into Part 101.[360] The new form would reflect a simplified procedure for use by all Part 101 applicants and would provide for all the necessary information, replacing the need for the specificity in the proposed LMDS application rule. It also would reflect our elimination in the *Part 101 Report and Order* of several application showings that we included in the proposed LMDS rule, including the financial showing, the public interest showing, and other managerial showings.[361] We also determined to incorporate in the Form 494 replacement the essential ownership information from Form 430, which we would eliminate. We also eliminated the use of Form 494A and the requirement to certify completion of construction.

234. On February 3, 1997, we implemented new FCC Form 415 for Part 101 to be used for initial applications, amendments to applications, and modifications to licenses and for providing all of the essential information for issuing a license and enforcing compliance with any pertinent regulations.[362] However, we do not adopt the use of Form 415 for LMDS. We find that Form 600 used for other wireless services is more suitable for LMDS, providing for expedited filing and electronic processing that is not yet implemented for Form 415. In all other respects, Form 600 is similar to Form 415, in that it encompasses the versatility of uses and enables the streamlined filing procedures intended for LMDS and available to other Part 101 applicants in Form 415. We will modify Form 600 to include LMDS and reflect the filing procedures we adopt for LMDS and discuss below.

235. We adopt new Section 101.1013 to identify the application forms to be used for LMDS. Form 600 is used for the filing of an initial application, as well as an application to amend a pending application and to modify an existing license. Form 600 also is to be submitted for notification within 30 days of the addition, removal, relocation, or other modification of any stations in a licensee's authorized area. Although licensees are free to establish or modify operations anywhere within their licensed area at any time, it is necessary

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[359] 47 CFR §§ 21.7, 21.11.

[360] *Part 101 Report and Order,* 11 FCC Rcd at 13458 (para. 17).

[361] *Id.* at 13453 (para. 7).

[362] Public Notice, Wireless Telecommunications Bureau Announces Schedule for Implementation of New FCC Form 415, released Feb. 3, 1997.

that we have on file updated information on the technical aspects of any operations under our jurisdiction for enforcement and other purposes and not, as here, for authorization.[363] Section 101.15 provides for the use of Form 405 for renewal of station license, Form 702 for assignment of license, and Form 704 for transfer of control, which we will include for LMDS use. We do not include a form for the partial assignment of license also in Section 101.15, inasmuch as the extent to which a license may partition or disaggregate its license is a matter that is pending in the Fifth Notice of Proposed Rulemaking we adopt in this proceeding.

c. Public Notice

236. We did not specifically provide for public notice for LMDS filings in our proposed rules in the *First NPRM*. Filings would have been governed by the general provisions in Part 21, which provide a 30-day notice period for initial applications, major amendments, and certain modifications and provide for the filing of petitions to deny.[364] In consolidating the rules in Part 101, we adopted the same public notice provisions in Section 101.37 and, for petitions to deny, in Section 101.43.[365]

237. The public notice requirements are imposed in Section 309(b) of Title III of the Act on initial applications and substantial amendments thereof filed by wireless common carriers.[366] The same provision also grants the Commission the authority to impose public notice requirements for other licenses, even though public notice is not required by the statute. We impose uniform 30-day public notice requirements in our rules governing applications in the other wireless services that provide status election procedures to allow authorization on either a common carrier or non-common carrier basis. For example, no distinction is made between applications for either status under the public notice requirements for MDS or satellite systems.[367] When we adopted the MDS rules, we specifically determined to hold

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[363] We adopt new Section 101.1009 to identify those instances in which an licensee may be required to file an individual application for a modification of its station or otherwise may not rely solely on the notification within 30 days of any changes in its operations as sufficient to allow those changes.

[364] 47 CFR §§ 21.27, 21.30.

[365] In the *Part 101 Report and Order*, we eliminated our rule in Section 1.962(a) that imposed the 30-day notice period on applications for private fixed point-to-point microwave service. However, that action was mandated by the Telecommunications Act of 1996 and is not pertinent to our discussion here, which pertains to a non-common carrier service that does not fit the definition of private microwave service under Part 101 and is a point-to-multipoint local service. *Part 101 Report and Order*, 11 FCC Rcd at 13478 (para. 82).

[366] 47 U.S.C. § 309(b).

[367] 47 CFR §§ 21.27(a)(1), 25.151(a)(1).

applicants or licensees electing non-common carrier status to the same licensing rules as common carriers in Part 21 and to all the application provisions of Title III.[368]

238. As in the MDS and satellite rules, we adopt our proposal to impose a uniform public notice requirement on all LMDS applications and will modify Section 101.37 to include all LMDS applications in its provisions, rather than only common carrier applications as currently required. We find that imposing the 30-day notice requirement on non-common carrier applications would not be an undue burden on such applicants, but rather would be administratively useful. This enables us to ensure that the applicant filing for both common carrier and non-common carrier authorization in a single license is in compliance with the licensing requirements for common carriers imposed in Title III.

239. Moreover, imposing the statutory requirement even on the LMDS applicant seeking initial authorization on only a non-common carrier basis facilitates our ability to ensure its flexibility as a licensee to change or add offerings under our broad service definition. In the MDS and satellite rules, we allow licensees to make subsequent status changes under reduced notification requirements. In the *First NPRM,* we proposed to allow LMDS licensees to notify the Commission ten days after the change occurred. While we discuss below the modification procedures we adopt for LMDS licensees to follow in changing status, we establish here the importance of the 30-day notice requirement on all initial applications. When we adopted the MDS rules, we pointed out that anyone objecting to status changes was on notice that it would be possible for the licensee to change status.[369] Similarly, we expect interested parties to be on notice that any LMDS licensee is free to change its status or add to its status, and they should take into account the broad service definition when the applicant files its initial application under the public notice provisions of Section 101.37.

d. Foreign Ownership Restrictions

240. In the *First NPRM,* we proposed a rule concerning the eligibility of applicants to be granted LMDS authorization.[370] The proposed rule does not include, nor did we address, the foreign ownership eligibility restrictions on the issuance of a license, so that LMDS applicants would have been governed by the MDS provisions in Part 21. Certain foreign ownership and citizenship requirements are imposed in Sections 310(a) and 310(b) of the Act,

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[368] *MDS Report and Order,* 2 FCC Rcd at 4253 (para. 16), 4254 (para. 27).

[369] *Id.* at 4255 (para. 29).

[370] *First NPRM,* 8 FCC Rcd at 568, Appendix B, Proposed Rule § 21.1001.

as modified by the 1996 Act, that prohibit the issuance of licenses to certain applicants.[371] The statutory provisions are adopted in Part 101 at Section 101.7 and reflect the restrictions as they must be imposed on LMDS applicants.[372] Specifically, Section 101.7(a) prohibits the granting of any license to be held by a foreign government or its representative. Section 101.7(b) prohibits the granting of any common carrier license to be held by individuals that fail any of the four citizenship requirements listed.

241. By its terms, Section 101.7 applies to LMDS applicants without modification. Thus, the LMDS applicant requesting authorization only for common carrier service would be prohibited from holding a license if it met any of the additional criteria in Section 101.7(b). If the LMDS applicant requested authorization only for non-common carrier services, it could hold a license if it met the single alien ownership requirement in Section 101.7(a) regardless if it would otherwise be disqualified for a common carrier authorization. As for the LMDS applicant requesting authorization for both non-common carrier and common carrier services, it would be disqualified from a license if it met any of the criteria in Section 101.7(b). Whether the applicant is seeking only common carrier authorization in a license or in combination with a non-common carrier authorization, the provisions of Section 101.7(b) would apply in either situation and would prevent any common carrier authorization from being issued to an ineligible applicant.

242. In the filing of application under the MDS and satellite rules, we require the applicant electing non-common carrier status to submit the same information that common carrier applicants submit to address the alien ownership restrictions under Section 310(b) of the Act. In adopting the MDS rules, we directed applicants electing non-common carrier status to file Form 430 to provide the information on ownership qualifications the same as common carrier applicants.[373] We amended Section 21.11(a) of our rules to specifically impose on non-common carrier MDS licensees the obligation to file Form 430 on an annual basis in order to establish licensee qualifications. In the *Satellite Rules Report and Order*, we decided to continue to require non-common carriers applicant to provide the foreign ownership information requested of common carrier applicants in the new application form proposed for satellite services.[374] We pointed out that the new form does not eliminate the requirement that both common carrier and non-common carrier earth and space station

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[371] 47 U.S.C. §§ 310(a)(b).

[372] 47 CFR § 101.7, *as amended by* Amendment of Parts 20, 21, 22, 24, 26, 80, 87, 90, 100, and 101 of the Commission's Rules to Implement Section 403(k) of the Telecommunications Act of 1996 (Citizenship Requirements), Order, 11 FCC Rcd 13072 (1996), *adopting* revised Section 101.7.

[373] *MDS Report and Order*, 2 FCC Rcd at 4253 (para. 16).

[374] *Satellite Rules Report and Order*, at para. 43.

licensees must file an updated Form 430 whenever there are changes to a licensee's financial and legal qualifications.

243. We adopt a similar requirement for non-common carrier LMDS applicants in new Rule 101.1013(b) and require them to provide the same foreign ownership information required of common carrier applicants when they file an application. Under the regulatory flexibility accorded licensees to change status with a minimum of regulatory interference, updated information can be used whenever the licensee changes to common carrier status without imposing an additional filing when the licensee makes the change. Like common carriers, non-common carriers will be required to file an updated form whenever there are changes to the foreign ownership information as well as the other legal and financial qualifications. We would not disqualify the applicant requesting authorization exclusively to provide non-common carrier services from a license if its citizenship information reflects it would otherwise be disqualified from a common carrier license. That is not permitted under the statute. As we stated in the *Satellite Rules Report and Order*, we are requiring non-common carriers to address all the alien ownership prohibitions to better enable us to monitor all of the licensed providers in light of their ability to provide both common and non-common carrier services.[375]

e. Initial Applications

244. As stated, we are adopting use of FCC Form 600 for use as the long-form application for initial authorization, amending a pending application, modifying an existing license, and for notification within 30 days of any increase, removal, relocation, or other modification regarding stations in a licensee's authorized area. Under the flexible regulatory framework we have adopted, an applicant may request initial authorization on both a common carrier and non-common carrier basis in a single license. It may also request authorization only on a common carrier basis or a non-common carrier basis. We will modify Form 600 to include LMDS in its provisions and to permit the applicant to indicate whether it is requesting common carrier authorization, non-common carrier authorization, or both authorizations in its license. As we stated, the LMDS applicant is not required to describe its proposed services, and its choice of status is based on its own determination of the nature of its services. If an applicant is unsure of the nature of its services and whether or not they are classified as common carrier services, it may submit a petition with its application, or at any time, requesting clarification and including service descriptions for that purpose.[376]

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[375] *Id.*

[376] In authorizing the dual provision of common and non-common carrier service under a DBS license, we recognized that there may be classification questions to address in order to correctly impose the applicable common carrier or other statutory requirements on the applicant. We determined to resolve such questions in the

f. Changing Regulatory Status

245. In the *First NPRM,* we proposed a status election mechanism for an applicant or licensee to change between common and non-common carrier status.[377] We have concluded, however, that the mechanism we proposed is not consistent with the overall licensing framework we have established in this Order, and we therefore have declined to adopt the proposed mechanism.[378] We adopt for LMDS the procedures in Part 101 for filing applications for amendments to pending applications and for modification of existing licenses, and will modify the rules to provide for amendments or modifications that seek to change, or add to, regulatory status as common carriage or non-common carriage, as discussed below.

(1) Amendments to Pending Applications

246. Section 101.29 provides for the filing of applications to amend pending applications. We will permit amendments to LMDS applications that amend the carrier status reflected on the application. An amendment may change the proposed classification from common carriage to non-common carriage, or from non-common carriage to common carriage. It also may add common carriage or non-common carriage to an initial classification request in order to amend the pending application to reflect a request for authorization in a single license to provide both common carrier and non-common carrier services.

247. We will not designate such amendments as major in order to subject the amended application to public notice, but rather treat the filing as any other amendment for expedited processing. All initial applications for LMDS authorization are being submitted to public notice and petitions to deny, and we have put interested persons on notice that the LMDS service definition includes both common and non-common carrier services that a licensee can provide in any combination under a simplified notification process we discuss later. In these circumstances, we find no reason to impose an additional notice period on the pending application and no reason to amend Section 101.29, which otherwise includes LMDS in its provisions.

(2) Modification Applications

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context of each individual application and to rely on applicants' showing of the particular features of their proposals on a case by case basis. *Interim DBS Report and Order*, 90 FCC 2d 676, 709 (paras. 85-86, n.79).

[377] *First NPRM*, 8 FCC Rcd at 561 (para. 26), 569 (§ 21.1003).

[378] See paras. 221-225, *supra.*

248. We also permit licensees to modify their licenses in order to change, or add to, the authorized status. In determining the appropriate procedures to use, we note that licensees changing status in the MDS, satellite, or DBS rules blend the notice requirements of discontinuance with the modification process. In initially adopting the status change procedures for satellites services, we found that we could make the same public interest findings in granting the request for modification coterminously with granting authority to discontinue service.[379] Unlike those services, we will permit LMDS licensees not only to operate exclusively as a common carrier or non-common carrier, but to provide services on both bases. Thus, we must provide a modification procedure that does not presume the underlying service will be discontinued and does not build into it the discontinuance notice requirements.

249. In recently considering the procedures for satellite licensees to change status, we decided to use different license modification procedures to accomplish the change, depending on the change requested.[380] A change from non-common carrier status to common carrier status was determined to be a modification that does not require prior Commission authorization and would only require Commission notification after 30 days. A change from common to non-common carrier status is a modification application that requires full public notice and prior Commission approval in order to allow the discontinuance of common carriage.

250. We will not combine our discontinuance procedures with the modification procedures, but rather will adopt one streamlined process for all requests to change or add to the regulatory status of a licensee. We find that all applications to modify a licensee's status should be filed as modifications that do not require prior Commission authorization. With respect to the Title III notice requirements, we have imposed the public notice requirements on all initial applications and interested parties are on notice of the flexibility accorded licensees to change from non-common carrier to common carrier status. We also require all licensees to maintain a current record of their foreign ownership status, which allows us to assess the licensee's compliance with that Title III licensing requirement in the event of a change to common carrier status.

251. In these circumstances, we see no reason to require licensees changing status to be hampered by further notice requirements, except to the extent they may be discontinuing an underlying service. This is consistent with the reduced notice requirements we impose on status changes in the MDS rules, as well as the satellite rules. Section 101.61 provides for modifications that do not require prior Commission authorization, which we will modify to

[379] *Domsat Memorandum and Order*, 90 FCC 2d at 1258 (para. 50).

[380] *Satellite Rules Report and Order*, at para. 34 (adopting new Section 25.118(b)).

include LMDS licensees. Under the rule, licensees are required to notify the Commission of changes by submitting a completed application form within 30 days after the changes are made. We believe that the 30-day notification requirement is administratively useful and is appropriate for carrier classification changes, except to the extent that a status change would result in the discontinuance, reduction, or impairment of existing services. In that case, the licensee must adhere to the discontinuance requirements in Section 101.305 discussed below. We amend Section 101.61(b) to require that, if the LMDS applicant filing for a modification in its carrier classification would also be subject to Section 101.305, the applicant adhere to the filing deadlines and requirements in Section 101.305 when filing its Form 600 under Section 101.61, which are more stringent than the 30-day notification requirement in Section 101.61(b).

g. Discontinuance, Reduction, or Impairment of Service

252. In the *First NPRM,* we proposed that LMDS be subject to the special rules for discontinuance of common carrier services by MDS licensees in Section 21.910.[381] In all other respects, licensees would have been subject to the general discontinuance provisions for common and non-common carrier services in Section 21.303.[382] In adopting the rules in Part 101, we included them in Section 101.305.

253. Title II of the Act requires that no common carrier may discontinue, reduce or impair service without prior Commission approval.[383] In conformance with this requirement, Section 101.305(b) requires a licensee subject to Title II to obtain prior authorization from the Commission pursuant to the procedures set forth in Part 63 of our rules.[384] Thus, an LMDS licensee authorized to provide common carrier service that seeks to change status to a non-common carrier or otherwise reduce its common carrier service is subject to Section 101.305(b). We find no reason to adopt the special MDS rules in Section 21.910 for discontinuance of LMDS common carrier service, which is appropriately covered by the procedures in Part 63. If the LMDS common carrier licensee filing under Section 101.305(b)

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[381] *First NPRM*, 8 FCC Rcd at 569, Appendix B, Proposed Rule § 21.1003(d).

[382] 47 CFR § 21.303.

[383] 47 U.S.C. § 214. Mobile common carriers are exempt from this requirement.

[384] 47 CFR Part 63. We recently proposed to amend our Part 63 rules to reflect amendments to Section 214 of Title II in the 1996 Act, which would affect the existing discontinuance procedures for certain common carriers. Implementation of Section 402(b)(2)(A) of the Telecommunications Act of 1996: CC Docket No. 97-11, Notice of Proposed Rulemaking, FCC 97-6, released Jan. 13, 1997.

is also filing under Section 101.61 to modify its classification to non-common carriage, the filing under Section 101.61 must conform with the deadlines and requirements under Section 101.305(b).

254. Section 101.305(c) requires that a licensee not subject to Title II who voluntarily discontinues, reduces or impairs its service give written notification to the Commission within seven days of the change. Thus, an LMDS licensee engaged in non-common carrier services is governed by this provision. We amend the rule to clarify the ambiguity, which states that it is for "common carrier licensees not subject to title II," and provide that, like Section 21.303(c) from which it came,"any licensee, not subject to title II" is covered. If the LMDS non-common carrier licensee is also filing under Section 101.61 to modify its classification to non-common carriage, the filing under Section 101.61 must conform with the 7-day deadline under Section 101.61.

255. The discontinuance rules require that the licensee submit the license for cancellation in the event that permanent discontinuance of service is authorized. In MDS, we exclude the licensee from this requirement and provide that the MDS license need not be surrendered for cancellation if discontinuance of either the common carrier or non-common carrier services is a result of a change of status under the MDS procedures.[385] We amend Sections 101.305(b) and 101.305(c) to similarly exclude LMDS licenses from cancellation under such circumstances.

h. Fees

256. Fees are prescribed in Section 101.11 for applications or other filings requiring fees as set forth in Subpart G of Part 1 of the Commission's Rules. In the *First NPRM,* we pointed out that fees for filing applications are set by Congress in Section 8(a) of the Communications Act, which does not include LMDS.[386] We proposed to adopt the fee structure of MDS, which is listed in Section 1.1105 for common carrier services, on the grounds that LMDS is a type of multipoint distribution service. We find that this is an issue appropriately to be decided by Congress. Congress has not granted the Commission the authority to amend the application fee schedule and we may not take any action to change the schedule in this proceeding.

257. Since 1994, the Commission has implemented procedures in Subpart G of Part 1 for prescribing and collecting annual regulatory fees from all Commission licensees to recover

[385] 47 CFR §§ 21.303(b), 21.303(c).

[386] *First NPRM,* 8 FCC Rcd at 564 (para. 50).

costs incurred in carrying out our activities.[387] We adopted the regulatory fees for fiscal year 1996 in an Order released July 5, 1996.[388] We are required each year to consider adjustments of the fees and to add or reclassify services in the Schedule to reflect additions, deletions, or changes in the nature of services. Thus, regulatory fees for LMDS will be considered upon adoption of these rules for inclusion in the Schedule in the proposed regulatory fees for fiscal year 1997. We note that for 1996, we adopted a regulatory fee for MDS of $140 per call sign and a similar fee for common carrier fixed point-to-point microwave service.[389] Although regulatory parity may dictate that fees for similar services be equivalent, we have not yet determined the specific costs associated with our enforcement, policy, and rulemaking activities relating to LMDS. In order to provide interested parties with the opportunity to comment on the costs associated with the regulation of LMDS, we will address these questions in the rulemaking proceeding concerning proposed changes to the regula tory fee schedule for fiscal year 1997.

i. Equal Employment Opportunity

258. Section 101.311 requires that equal employment opportunity (EEO) must be accorded by all common carrier licensees consistent with the provisions of Section 21.307, which governs MDS. That rule imposes the EEO requirements on all MDS licensees, whether authorized to provide common carrier services or non-common carrier services. Section 21.920 in the MDS rules specifically adopts the cable rules for EEO in Subsection E of Part 76, which requires that an MVPD is an entity subject to the EEO rules there. As with MDS, the LMDS non-common carrier will be authorized to provide video programming and must be subject to the same EEO requirements as the common carrier licensee. Accordingly, we modify Section 101.311 to impose the requirements on all LMDS licensees.

j. License Terms

259. Section 101.67 provides that all licensees under Part 101 will have a license term not to exceed 10 years. In the *First NPRM,* we proposed a license term of five years, but requested comment on whether a term of 10 years would be more appropriate. Commenters generally favored a grant of 10 years to ensure that the services are implemented successfully. We adopt a 10-year term for LMDS licensees. This is consistent with the rules governing other Part 101 services. It also serves our goal of providing licensees with

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[387] *See* 47 CFR §§ 1.1151-1.1166.

[388] Assessment and Collection of Regulatory Fees for Fiscal Year 1996, MD Docket No. 96-84, Report and Order, FCC 96-295, released July 5, 1996 (*1996 Regulatory Fees Report and Order*).

[389] *Id.* at paras. 36-38; Appendix F, para. 31.

flexibility to develop this spectrum as the market demands and to employ innovative technologies which may not be available immediately upon licensing.

k. Renewal Expectancy

260. In the *First NPRM* we proposed to establish renewal expectancy rules for LMDS licenses and requested comment regarding the operation and administration of such rules in the context of license renewal comparative hearing proceedings.[390] Based upon our review of the record and further examination of this issue, we have decided to establish a major preference (generally referred to as a "renewal expectancy") as a comparative factor for consideration by the Commission in LMDS license renewal proceedings. It is our view that this renewal expectancy, coupled with the 10-year license term, will contribute toward the establishment of a stable regulatory environment that will serve to attract investment capital that, in turn, will fuel the development and deployment of services utilizing the LMDS spectrum bands.

261. Our renewal expectancy for LMDS is based on renewal expectancy rules we have adopted for cellular service.[391] Under the rules we adopt today, an LMDS license renewal applicant involved in a comparative renewal proceeding is entitled to a renewal expectancy if the record of the renewal applicant for the relevant license period provides sufficient evidence that the applicant has furnished substantial service during its license term, and that the applicant has substantially complied with the Communications Act, and with applicable Commission rules and policies. We define "substantial service," for purposes of our proposed renewal expectancy rule, as service that is sound, favorable, and substantially above a level of mediocre service that just might minimally warrant renewal.

262. We also require that, in order to qualify for a renewal expectancy, an LMDS license renewal applicant must submit a showing that explains the basis upon which the applicant should receive the expectancy. We require that this showing shall, at a minimum, include the following:

- A description of the current service provided by the applicant, in terms of geographic coverage and population served.

- An explanation of the applicant's record of expansion, including a timetable of the construction of new facilities to meet changes in demand for services provided by the applicant.

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[390] *First NPRM*, 8 FCC Rcd at 564 (para. 40).

[391] *See* Section 22.940 of the Commission's Rules, 47 CFR § 22.940.

- A description of investments made by the applicant in its system.

- A copy of any Order adopted by the Commission finding that the renewal applicant has violated the Communications Act or any Commission rule or policy, and a list of any pending proceedings in which allegations have been made that the applicant has violated the Communications Act or any Commission rule or policy.

l. Construction Requirements

(1) Background; Comments

263. In the *Third NPRM*, we noted that the record indicates that the only potential delays in the deployment of LMDS would be manufacturing sufficient equipment. In order to foster the maximum diversity in services and technology, we tentatively concluded that build-out requirements should not be strict. On the other hand, we expressed concern that rural areas would not receive service without a build-out requirement. Accordingly, we proposed that LMDS licensees be required to have made service available to a minimum of one-third of the population of their geographic areas within five years from the date of license grant, and to two-thirds of the population of their geographic areas within ten years from the date of license grant.[392]

264. The parties are divided on this issue. Bell Atlantic and CellularVision support the Commission's proposal.[393] ComTech also agrees with the build-out requirements proposed in the *Third NPRM*, with a variation. ComTech encourages the Commission to require a faster build-out requirement for companies that acquire a license covering or immediately adjacent to their existing service areas, because it believes that these requirements will ensure against anticompetitive behavior.[394]

265. HP, TI, and M3ITC, potential LMDS manufacturers, oppose any build-out requirement if auctions are used as a licensing mechanism.[395] HP argues against a build-out requirement based on concerns that all licensees might not be able or willing to satisfy them. It argues that: (1) not all geographical areas within a BTA will be suitable for LMDS due to propagation characteristics; (2) some potential license holders might already have an existing

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[392] *Third NPRM*, 11 FCC Rcd at 95-96 (paras. 113-117).

[393] Bell Atlantic Comments to *Third NPRM* at 8-9; CellularVision Comments to *Third NPRM* at 22-23.

[394] ComTech Comments to *Third NPRM* at 8.

[395] HP Comments to *Third NPRM* at 6-7; TI Comments to *Third NPRM* at 19-20; M3ITC Comments to *Third NPRM* at 3.

broadband infrastructure in some portions of their license area, which they would possibly not choose to overlay with redundant wireless architecture; and (3) even in areas where LMDS is the technology of choice, some households will be "shadowed."[396] TI, too, opposes adoption of a build-out schedule, arguing that LMDS equipment may not be immediately available in sufficient quantities to permit licensees to comply with such a requirement.[397] Instead, M3ITC recommends a time limit in which an operator is permitted to claim its service area, *e.g.*, eight years. Thereafter, M3ITC suggests, the Commission should open unserved areas for licensing in the same manner as has been done with respect to cellular unserved areas.[398]

(2) Decision

266. We have concluded that we will adopt very flexible build-out requirements for LMDS. Specifically, we will require licensees to provide "substantial service" to their service area within 10 years. Although LMDS licensees will have incentives to construct facilities to meet the service demands in their licensed service area, we believe that minimum construction requirements can promote efficient use of the spectrum, encourage the provision of service to rural, remote, and insular areas, and prevent the warehousing of spectrum.

267. The build-out requirement that we adopt today is based upon the requirement we recently adopted for Wireless Communications Services, which is the most liberal construction requirement the Commission has adopted.[399] We believe that this liberal build-out requirement is appropriate in the case of LMDS for a number of reasons. First, we are providing LMDS licensees with the flexibility to offer a range of services using the LMDS spectrum. Given the broad range of new and innovative services that the comments lead us to believe might be provided over LMDS spectrum, imposing strict construction requirements that would apply over the license term would be neither practical nor desirable as a means of meeting the objectives established in Section 309(j) of the Act regarding warehousing and rapid deployment. Without knowing the specific type of service or services to be provided, it would be difficult to devise specific construction benchmarks.

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[396] HP Comments to *Third NPRM* at 6-7. "Shadowed" households are those which are situated within an area generally receiving adequate signal strength from a hub transmitter, but to which the transmitter signal is blocked due to terrain or other obstacles. In the absence of a specially designed solution (*e.g.*, repeaters) these households would not be able to receive LMDS services.

[397] TI Comments to *Third NPRM* at 19.

[398] M3ITC Comments to *Third NPRM* at 3-4.

[399] *See* Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service ("WCS"), GN Docket No. 96-228, Report and Order, FCC 97-50, released Feb. 19, 1997 (*WCS Report and Order*).

268. Further, given the undeveloped nature of equipment for use in this band, we are concerned that strict construction requirements might have the effect of discouraging participation in the provision of services over the LMDS spectrum. It may be that a potential licensee could efficiently conduct certain operations on LMDS spectrum, but must await further technological developments to do so affordably. Adopting strict construction requirements here could effectively preclude efficient uses of the spectrum.

269. At the 10-year period, we will require all LMDS licensees to submit an acceptable showing to the Commission demonstrating that they are providing substantial service. Licensees failing to demonstrate that they are providing substantial service will be subject to forfeiture of their licenses. We note that in the past we have defined substantial service as "service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant renewal."[400] For LMDS, however, we believe that further elaboration on this standard in the form of examples of what might constitute substantial service is useful.

270. Thus, for an LMDS licensee that chooses to offer point-to-multipoint services, a demonstration of coverage to 20 percent of the population of its licensed service area at the 10-year mark would constitute substantial service. In the alternative, an LMDS licensee that chooses to offer fixed, point-to-point services, the construction of four permanent links per one million people in its licensed service area at the 10-year renewal mark would constitute substantial service. In addition, the Commission may consider such factors as whether the licensee is offering a specialized or technologically sophisticated service that does not require a high level of coverage to be of benefit to customers,[401] and whether the licensee's operations serve niche markets or focus on serving populations outside of areas served by other licensees.[402] These safe-harbor examples are intended to provide LMDS licensees a degree of certainty as to how to comply with the substantial service requirement by the end of the initial

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[400] *See, e.g.*, 47 CFR § 22.940(a)(1)(i).

[401] We have taken this approach in the past with respect to other services. *See* Amendment of Parts 2 and 90 of the Commission's Rules to Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and the 935-940 MHz Bands Allotted to the Specialized Mobile Radio Pool -- Implementation of Section 309(j) of the Communications Act -- Competitive Bidding and Implementation of Sections 3(n) and 322 of the Communications Act, GN Docket No. 93-252, Second Report and Order and Second Further Notice of Proposed Rule Making, FCC 95-159, 10 FCC Rcd 6884 (1995) (*Competitive Bidding Second Report and Order*) at para. 4.

[402] *See* Amendment of Parts 2 and 90 of the Commission's Rules to Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and the 935-940 MHz Bands Allotted to the Specialized Mobile Radio Pool -- Implementation of Sections 3(n) and 322 of the Communications Act, GN Docket No. 93-252, Third Order on Reconsideration, 11 FCC Rcd 1170 (para. 2) (1995).

license term. This requirement can be met in other ways, and we will review licensees' showing on a case-by-case basis.

271. We believe that these build-out provisions fulfill our obligations under Section 309(j)(4)(B). We also believe that the auction and service rules which we are adopting for LMDS, together with our overall competition and universal service policies, constitute effective safeguards and performance requirements for LMDS licensing. Because a license will be assigned in the first instance through competitive bidding, it will be assigned efficiently to a firm that has shown by its willingness to pay market value its willingness to put the license to its best use. We also believe that service to rural areas will be promoted by our proposal to allow partitioning and disaggregation of LMDS spectrum.[403]

272. Finally, we note that we reserve the right to review our liberal construction requirements in the future if we receive complaints related to Section 309(j)(4)(B), or if our own monitoring initiatives or investigations indicate that a reassessment is warranted. We also reserve the right to impose additional, more stringent construction requirements on LMDS licenses in the future in the event of actual anticompetitive or rural service problems and if more stringent construction requirements can effectively ameliorate those problems.

C. Technical Rules and Requirements

1. Frequency Coordination

a. Background; Comments

273. In the *Third NPRM*, we recognized that, although a licensee under our proposed framework would be able to conduct operations anywhere within its geographic area, a licensee may need to coordinate its operation with other entities licensed to provide service in geographically adjacent service areas to avoid interference situations. We proposed to require applicants to coordinate frequencies among themselves at their service area boundaries under our existing coordination rules.[404] This process, the NPRM suggested, would be highly efficient, and would provide LMDS operators sufficient engineering flexibility to avoid interference problems. Alternatively, we proposed to establish a power flux density (PFD) level at the service area boundaries. Included in the PFD rule would be a provision allowing parties to exceed the limit if they could agree on a higher level. The *Third NPRM* suggested that this approach would possibly require less Commission involvement and would hasten the

[403] In addition, the broad universal service policies of the Telecommunications Act of 1996 will contribute substantially to addressing this objective.

[404] *Third NPRM*, 11 FCC Rcd at 97 (para. 120), citing 47 CFR § 21.100(d), adopted in 47 CFR 101.103(d).

introduction of LMDS services. Therefore, we asked commenters to recommend a PFD limit they believed to be reasonable.[405]

274. In general, LMDS proponents favor employing a frequency coordination procedure, rather than limiting the PFD at the service area boundaries.[406] For the most part, they acknowledge that the PFD approach would be much simpler; but, as they explain, LMDS development is still in its infancy and therefore, it would be extremely difficult to determine a PFD standard that would be protective of all LMDS system designs.[407] Besides, they note, competitive forces are more likely to cause system operators to maximize performance standards. These competitive forces, commenters argue, are likely to be more effective than any action by the Commission.[408]

275. To ensure successful frequency coordination and adequate interference control, TI proposes that the coordination notification contain values for the following parameters: (1) EIRP; (2) channelization and frequency plan; (3) modulation type and channel bandwidth; (4) frequency stability; (5) receiver parameters (noise figure, bandwidth, and thresholds); (6) antenna characteristics; and (7) system geometry.[409] In addition, TI recommends that coordination between adjacent LMDS systems only encompass hubs located within 20 kilometers of BTA boundaries and that coordination be limited to BTAs with different licensees. TI further suggests that existing coordination procedures contained in Section 21.100(d) of the Commission's Rules serve as a guide, and that we adopt a rule requiring LMDS systems to use power control techniques to further simplify resolution of interference problems.[410]

276. NYNEX recommends that the Commission establish an independent technical advisory committee to establish technical rules. CellularVision opposes any rule requiring LMDS operators to use active power control and interlock techniques in their systems. It

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[405] *Id.*

[406] *See, e.g.*, CellularVision Comments to *Third NPRM* at 23-24; Endgate Comments to *Third NPRM* at 5; HP Comments to *Third NPRM* at 8.

[407] *See, e.g.*, CellularVision Comments to *Third NPRM* at 23-24; ComTech Comments to *Third NPRM* at 10.

[408] *See, e.g.*, CellularVision Comments to *Third NPRM* at 23-24; ComTech Comments to *Third NPRM* at 9.

[409] TI Comments to *Third NPRM* at 20.

[410] *Id.* at 21, 23.

contends that these approaches are not necessary, and that they will only complicate LMDS designs and serve to drive up equipment costs to consumers.[411]

b. Decision

277. There is no support in the record for establishing a service area boundary PFD limit for coordinating adjacent LMDS systems. Commenters believe that LMDS has not matured to the point necessary to enable the calculation of a reasonable limit that would be beneficial in its application. Moreover, adoption of a limit now could stifle more advanced development of LMDS technology. Considering these potential drawbacks, we decline to set such a standard. We reject NYNEX's proposal that we establish a technical advisory committee to develop the technical record established in this proceeding further. As NYNEX notes, referring this matter to another committee would only delay to our process, and in our view would not be likely to yield any additional benefits.

278. Instead of adopting a service area boundary PFD limit, we have decided to adopt the frequency coordination procedures outlined in Section 101.103(d), as proposed in the *Third NPRM*. This coordination process provides licensees the greatest amount of flexibility in system design while ensuring that system interference will be kept to a minimum. These benefits for microwave services are well documented.[412] Our experience with other services employing prior frequency coordination procedures shows that those services are successfully implemented with little delay and rarely result in unresolved frequency interference cases. Given the support in the record and the past success of the process in other services, we believe LMDS will benefit from a similar program. The regulatory scheme being adopted provides each LMDS licensee complete control over its own facilities within its designated service area. Therefore, each licensee will have the flexibility to establish most service performance and interference levels within its system without affecting the operations of adjacent systems owned by other licensees.

279. We adopt new Section 101.103(g) to provide that, under these procedures, LMDS providers licensed to operate in the 27.5-28.35 GHz and 31.0-31.3 GHz bands will follow the requirements of Section 101.103(d) and provide each adjacent LMDS licensee and each potentially-affected, adjacent-channel FSS licensee, as necessary, values for the appropriate parameters listed in that subsection. In addition, LMDS providers authorized to operate in the 31.000-31.075 and 31.225-31.300 GHz bands will also be required to

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[411] CellularVision Reply Comments to *Third NPRM* at 34.

[412] We adopted the frequency coordination procedures in Section 101.103 based on the overwhelmingly support for the application of coordination procedures and standards for all fixed microwave services. *Part 101 Report and Order*, 11 FCC Rcd at 13455 (paras. 63-64).

coordinate with each non-LTTS cochannel incumbent licensee operating in these bands, consistent with the requirements of Section 101.103(d). Coordinating parties must supply information related to their channelization and frequency plan, receiver parameters (*e.g.*, noise figure, bandwidth, and thresholds) and system geometry. We agree with TI that, based on various assessments conducted in this proceeding,[413] coordination between adjacent LMDS systems need only encompass hubs and subscriber transceivers located within 20 kilometers of BTA boundaries. Each LMDS licensee must complete this coordination process prior to initiating service within its service area.

280. Currently, Section 101.103(b) does not require existing 31 GHz licensees to conduct frequency coordination, but rather identifies operations in the band as unprotected and subject to harmful interference. However, given our decision to designate the 31 GHz band for LMDS and to afford non-LTTS incumbent licensees in the 31.000-31.075 and 31.225-31.300 GHz bands protection status from LMDS equal to that of LMDS without changing their unprotected status among themselves, we must ensure that the non-LTTS incumbent licensees and the LMDS licensees operating in these bands are protected against each other. To achieve this goal, we revise Section 101.103(b) to reflect the protections we have adopted in this Report and Order for operations in the 31 GHz band. Also, new Section 101.103(g) requires that the non-LTTS incumbent licensees in the 31.000-31.075 and 31.225-31.300 GHz bands complete frequency coordination prior to any system modification if any transmitting station is within 20 km of an LMDS facility. In other words, these parties will be subject to the requirements of Section 101.103(d). Participating parties should resolve any problems that develop during this process. Only unresolved frequency conflicts should be reported to the Commission. In such cases we will resolve the conflicts.

281. At this time we do not see a need to require LMDS licensees to employ active power control and interlock circuitry in their systems. Although these devices may ensure that systems maintain a more constant power level and result in subscriber antennas being more accurately aligned, these are system elements that contribute to service performance and should be left to the discretion of the service providers. We do not wish to impose unnecessary costs on system operators or to indirectly impose service quality standards. As an additional matter, we adopted sharing rules in Section 101.147(x) in the *First Report and Order* between LMDS hub-to-subscriber transmissions and NGSO/MSS feeder links in the 29.100-29.250 GHz band, which impose certain coordination and protection requirements on LMDS licensees operating in that band.[414] We take the opportunity at this time to delete the rule from Section 101.147 and place it into Section 101.103 at subpart (h) without change so that all the coordination obligations of LMDS licensees are under Section 101.103.

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[413] *See, e.g.*, TI Comments to *Third NPRM* at 9-10.

[414] *First Report and Order*, at paras. 69-71.

2. Polarization

a. Background; Comments

282. To ease the frequency coordination process further, we proposed in the *Third NPRM* to restrict the type of polarization employable by LMDS systems to orthogonally-polarized signals. Based on available antenna technology, we concluded that adjacent LMDS systems could realize cross-polarization isolation levels of at least 20 dB,[415] and that allowing other types of polarization would potentially impose some geographical separation between systems, and thereby reduce service to the public.[416]

283. Commenters differ on this issue. Supporters of our proposal maintain that using orthogonally-polarized signals would advance the frequency coordination process, and would facilitate co-frequency sharing.[417] ComTech also argues that such signals will help avoid interference to satellite systems.[418] Parties in opposition argue that because the Commission proposed to require frequency coordination between LMDS licensees, a restriction on the use of various signal polarizations is unnecessary.[419] Those commenters note further that, although the limit may be appropriate now, future system developments may require different polarization schemes. NASA adds that because of orientation relationships of LMDS and FSS antennas, there is not likely to be any significant signal polarization isolation between these systems.[420]

b. Decision

284. Based on our review of the record and our further analysis of this issue, we conclude that greater system efficiency would be achieved if we adopt a uniform polarization scheme at least for service area boundaries. Allowing the use of any type of polarization scheme could produce undue hardship on some LMDS licensees, because they might be

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[415] *See* "Frequency Reuse in the Cellular LMDS," Suite 12 Group, filed Jan. 6, 1994, *cited in Third NPRM*, 11 FCC Rcd at 97 (para. 121, n.111).

[416] *Third NPRM*, 11 FCC Rcd at 97 (para. 121).

[417] *See, e.g.*, BellSouth Comments to *Third NPRM* at 13; CellularVision Comments to *Third NPRM* at 25-26; ComTech Comments to *Third NPRM* at 10; TI Comments to *Third NPRM* at 22.

[418] ComTech Comments to *Third NPRM* at 10.

[419] *See, e.g.*, Endgate Comments to *Third NPRM* at 6; HP Comments to *Third NPRM* at 8.

[420] NASA Comments to *Third NPRM* at 19-20.

required to make system alterations to adapt to an adjacent licensee using a non-orthogonal scheme. Because the polarization pattern employed in one service area could have a ripple effect throughout a region, the benefit of providing system owners complete autonomy in this area is outweighed by the potential cost in system modifications and delay in service implementation. We wish to point out that the restriction will apply only to the polarization scheme used at the service area boundary. Twenty kilometers beyond that boundary, licensees may employ any polarization format they conclude best meets their service and system requirements.

3. Equivalent Isotropically Radiated Power

a. Background; Comments

285. With the intent of creating a homogeneous LMDS environment, we proposed to restrict the maximum equivalent isotropically radiated power (''EIRP'') at which LMDS systems operate in the 27.5-28.35 GHz band to a -52 dBW/Hz. As to the band 29.1-29.25 GHz, we proposed that LMDS systems not operate at power levels more than those set forth in the sharing agreement between Motorola and various LMDS proponents. As an additional mitigating interference factor, the *Third NPRM* proposed to adopt a 0.001 percent frequency tolerance for all LMDS equipment.[421]

286. Comments regarding the proposed EIRP limit range from concurrence to disapproval. For example, TI says that the recommended power level is sufficient if the measuring standard is 1 megahertz as opposed to 1 hertz. TI proposes this modification because it wants to employ a pilot reference carrier in its system design. The power of that signal exceeds the -52 dBW/Hz proposed limit when measured on a per-hertz basis.[422] BellSouth supports the limits for LMDS hubs, but requests that no limit be placed on subscriber transceiver equipment (or return links). BellSouth argues that these units should be able to employ the maximum power permissible in the band, *i.e.*, -18 dBW/Hz, so that future equipment, designed for improved service quality, can be accommodated.[423] While sharing views similar to BellSouth's, HP suggests that subscriber transceiver equipment EIRP be limited to -30 dBW/Hz.[424]

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[421] *Third NPRM,* 11 FCC Rcd at 97-98 (para. 122).

[422] TI Comments to *Third NPRM* at 10.

[423] BellSouth Comments to *Third NPRM* at 13.

[424] HP Comments to *Third NPRM* at 2.

287. On the other hand, Endgate opposes any limit less than -18 dBW/Hz for operation in the 27.5-28.35 GHz band. According to Endgate, field tests have shown that the proposed -52 dBW/Hz limit will support line-of-sight coverage in normal foliated environments, but will not provide sufficient coverage to justify an LMDS system economically. Endgate contends that the LMDS system power level determines the quality of service provided.[425] Although the suggested power level benefits LMDS systems, NASA claims that this level makes LMDS systems more susceptible to interference from FSS operations.[426] As a compromise, CellularVision offers a maximum limit of -35 dBW/Hz based on a bandwidth of 1 megahertz. It believes this level is sufficient to meet the needs of LMDS subscribers and is conducive to frequency coordination.[427]

288. Although they support the Commission's efforts to maximize use of the 28 GHz band, CellularVision and ComTech do not support adoption of a frequency tolerance standard for LMDS subscriber transceiver equipment. They contend that although the proposed standard is within the state-of-the-art, it cannot be achieved at the necessary low cost for LMDS subscriber transceiver equipment.[428] Additionally, according to CellularVision and ComTech, LMDS subscriber transceiver equipment will operate at power levels much lower than hub stations, and, traditionally, the Commission has permitted lower-powered stations to operate at a lower frequency tolerance.[429] Therefore, they propose that subscriber transceiver equipment operating below 500 mW be exempt from any frequency stability requirement, or, in the alternative, that the current Part 21 standard of 0.03 percent for such facilities be adopted.[430]

b. Decision

289. The proposed EIRP limit was based on typical power levels LMDS system proponents provided for the general system characteristics contained in the "Report of the LMDS/FSS 28 GHz Band Negotiated Rulemaking Committee."[431] In addition, we believed

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[425] Endgate Comments to *Third NPRM* at 6-9.

[426] NASA Comments to *Third NPRM* at 20.

[427] CellularVision Reply Comments to *Third NPRM* at 33-34.

[428] *Id.* at 36.

[429] CellularVision Comments to *Third NPRM* at 28-29; ComTech Comments to *Third NPRM* at 11.

[430] CellularVision Comments to *Third NPRM* at 29; ComTech Comments to *Third NPRM* at 11.

[431] *See* Report of the LMDS/FSS GHz Band Negotiated Rulemaking Committee, Appendix 7, at 6-7.

that establishing such a maximum power level would create a more homogeneous LMDS operating environment because future system power levels would be closely aligned with the systems of record. Additionally, we saw this as aiding the ability to coordinate adjacent system operations. Proponents of a higher power limitation, however, want more flexibility to design future systems that can take advantage of more modern modulation techniques and greater discretion to use the EIRP system parameter to mitigate interference problems.

290. To meet our objectives and provide system designers with the necessary flexibility to further advance LMDS systems, we are adopting a maximum EIRP for LMDS hubs operating in the 27.5-28.35 GHz and 31 GHz bands of 30 dBW/MHz.[432] This higher EIRP, besides facilitating the above objectives, will also improve the reliability of longer paths and further improve service quality. In some cases, this may result in a requirement for fewer hub sites and a reduction in the cost of providing LMDS services. Moreover, this power increase should accommodate TI's proposed system single frequency operation as well. Because the transmission paths from the subscriber terminal equipment to a hub may be viewed as a point-to-point configuration, we will accord LMDS operators the discretion to use as much as 42 dBW/MHz (which is equivalent to the -18 dBW/hz noted in the *Third NPRM*) for such transmissions. We revise the table of transmitter power limitations in Section 101.113 to reflect the limits we adopt for LMDS and to permit incumbents in 31 GHz to continue at their currently authorized level.[433] Operations to take place in the 29.100-29.250 GHz band are governed by rules we adopted in the *First Report and Order* in Sections 101.113(c), as well as 101.133(d) and 101.147(t), which are new provisions designed to facilitate the sharing of this spectrum by LMDS, FSS/Geostationary Orbit (GSO) gateways, and MSS feeder link licensees.[434]

291. Although CellularVision and ComTech oppose adopting a frequency stability standard, they do not provide any data supporting their allegation that the costs they would incur to comply with our proposal would be too high. Other commenters believe as we do, that the proposed standard is reasonable, is within the state-of-the-art, and is economically feasible. Limiting the range within which the frequency can drift, in our view, will aid in coordinating frequency usage at service area boundaries. This means services can be introduced more rapidly and service quality can be significantly improved. Therefore, we adopt our 0.001 percent proposal for all LMDS transmitting equipment and amend the table

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[432] Note that the EIRP specification is now in terms of dBW/MHz and this new level represents an increase of 20 dBW above our proposal. Since we last addressed this issue, the scope of this proceeding has expanded to consider designating spectrum at the 31 GHz band for LMDS, and we in fact are taking action in this Second Report and Order to make available 300 megahertz of spectrum in the 31 GHz band for LMDS.

[433] 47 C.F.R. § 101.113.

[434] *First Report and Order*, at Appendix B, adopting 47 CFR §§ 101.113(c), 101.133(d), 101.147(x).

of frequency tolerance percentages in Section 101.107 accordingly, while permitting incumbent licensees in the 31 GHz band to continue at their existing level.[435]

4. RF Emissions

292. Although we have set power limitations for LMDS hubs and subscriber transceivers, these limits do not reflect consideration of potential radio frequency (RF) radiation hazard to equipment installers, passersby or subscribers. Generally, the hub antenna will transmit its main beam at some angle below the horizon, to communicate with subscriber transceivers. Its radiation pattern and EIRP levels will be similar to those of an MDS transmit station, a service the Commission has considered as part of its requirements for evaluating RF radiation exposure of the public or workers in the *RF Guidelines Report and Order*.[436] Similarly, we expect that the LMDS hub transmitting antennas would be mounted in a fashion that should preclude public access. For the purpose of complying with our RF radiation exposure guidelines and because of the technical similarities between LMDS and MDS, we are requiring LMDS licensees to follow the RF radiation guidelines and procedures that apply to MDS systems.

293. We note that if an MDS transmitting antenna is not rooftop mounted and its height above ground is less than 10 meters and the station's total power is greater than 1,640 Watts EIRP, a routine environmental evaluation will have to be performed.[437] If the facility is mounted on a rooftop and the power is greater than 1,640 W EIRP, a routine evaluation will have to be performed. We will apply the same criteria to LMDS. We note, however, that facilities, operations, and transmitters otherwise categorically excluded from the requirement to undertake such studies or to prepare a formal environmental assessment, are still expected to comply with our guidelines and may be subject to further environmental evaluation in special cases.[438]

294. Subscriber transceiver antennas present a unique situation. There is no existing service designed to operate in a similar fashion with similar technical parameters. Nonetheless, we emphasize that all FCC-regulated transmitters, including the subscriber terminals used in LMDS systems, are required to meet the applicable Commission guidelines

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[435] 47 C.F.R. § 101.107.

[436] Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, ET Docket No. 93-62, Report and Order, 11 FCC Rcd 15123 (1996) (*RF Guidelines Report and Order*).

[437] *See* 47 CFR § 1.1307(b)(1). If, as a result of the routine environmental evaluation, the facility is found to exceed the Commission's exposure limits, an Environmental Assessment must be prepared.

[438] *See* 47 CFR §§ 1.1307(c), 1.1307(d).